

SPECIFICATION

Improvements in and relating to hulls for boats

The invention relates to hulls for boats and particularly to shallow planing hulls.

5 The object of the invention is to produce a hull for a boat with reduced frictional drag between the bottom of the hull and the water.

10 According to the invention there is provided a hull for a boat comprising a forward portion and an after portion and having a transverse slot in the underside between said portions and an air passage leading from the slot to above the waterline of the hull when afloat, the forward portion immediately forward of the slot lying deeper below the waterline than the after portion immediately aft of the slot and being so shaped that on forward movement of the boat in water air is drawn through said passage, streams out from the slot and flows between the underside of the after portion of the hull and the water.

20 Preferably the tangent to the underside of the after portion adjacent the slot is inclined rearwardly and upwardly relative to the tangent to the underside of the forward portion adjacent to the slot.

25 Preferably again the air flows below the after portion of the hull in a film extending across at least a substantial part of the width of the hull. The underside of the hull may be slightly concave or in transverse section may have the shape of a shallow V, each arm of the V being slightly concave.

30 In order to reduce the tendency of the air to break up into bubbles, the surface of the underside of the hull may be treated to repel water or retain air.

Embodiments of the invention will not be described by way of example and with reference to the accompanying drawings of which:-

40 Fig. 1 shows a hull in vertical section from fore to aft of the boat;

Fig. 2 is a front elevation; and

Fig. 3 is a rear elevation.

45 The hull 1 is basically a plastics moulding having a portion 3 forward of the point of maximum depth and an after portion 5, and extending across the hull between the portions is a slot or channel 7. Immediately forward of the slot 7 the hull portion 3 lies deeper below the water line 9 than does portion 5 immediately aft of the slot; the intermediate step may be 17mm deep in a hull of 3.3m length. There is also a difference in inclination of the portions, the tangent of the after portion adjacent slot 7 being displaced by some 5° in an anticlockwise direction (as seen in Fig. 1) relative to the tangent of the forward portion adjacent slot 7. In boats of other size and according to the intended rate of travel, the depth of the step and the angle may have greater or lesser values. An optional metal strip 15 extending across the hull underlies the slot but leaves a gap 17 facing aft.

60 A duct 11 leads from the slot 7 to the deck 13 of the hull, though it is sufficient that the duct

85 should extend to above the water line 9.

The underside of the forward portion is so shaped that as the boat sails forward through the water at a predetermined speed, air is drawn down to the slot at atmospheric pressure, and streams through gap 17 beneath the after portions 5 in a film extending substantially across the whole width of the boat and moves rearwardly of the boat. The underside of portion 5 is coated with a silicone water-repellant material to reduce the tendency of the air to break up into bubbles. In an alternative embodiment the underside of portion 5 is covered with a fabric having a pile or nap of short water-repellant fibres to achieve the same objectives by entrapping air and repelling water.

80 The underside of the hull has the shape of a shallow V, each arm of the V being slightly concave. This shape in the forward portion creates lift which gives the boat a more efficient angle of attack. Moreover, the V-sectioned forward portion gives built-in stability, for as the boat heels to one side, the higher side suffers a reduction in lift whilst the lower side increases in lift and the boat is returned to an even keel.

85 Such construction is however not essential; the underside of the hull may be flat or slightly concave.

90 The hull of the embodiment is made of polyester, but in other embodiments could be moulded in other materials or constructed by any other suitable method.

95 Even if it is not possible to avoid the breaking up of the film into bubbles, it is believed that a "carpet" of bubbles close to the underside of the hull will nevertheless be advantageous in reducing drag or hull-water friction and reducing the amount of energy lost in displacing and in creating turbulence in the water.

CLAIMS

105 1. A hull for a boat comprising a forward portion and an after portion and having a transverse slot in the underside between said portions and an air passage leading from the slot to above the waterline of the hull when afloat the forward portion immediately forward of the slot lying deeper below the waterline than the after portion immediately aft of the slot and being so shaped that on forward movement of the boat in water air is drawn through said passage, streams out of from the slot and flows between the underside of the aft portion of the hull and the water.

110 2. A hull according to Claim 1 wherein the tangent to the underside of the after portion adjacent the slot is inclined rearwardly and upwardly relative to the tangent to the underside of the forward portion adjacent to the slot.

120 3. A hull as claimed in Claim 1 or Claim 2 such that in forward movement in water the flow of air between the underside of the after portion and the water is in the form of a film which extends across at least a substantial part of the width of the hull.

125 4. A hull as claimed in any one of the preceding claims wherein the underside of the after portion

is treated to repel water.

5. A hull as claimed in any one of the preceding claims wherein the underside of the after portion

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is treated to retain air.

6. A hull for a boat substantially as described with reference to the drawings.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1979. Published by the Patent Office,
25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.